approximation. Of course, these methods would involve a sacrifice in circuit size, processing speed, and the like.

What is claimed is:

1. A display device for displaying video data comprising of:

a display module; and

a correction circuit receiving a gradation signal input of said video data, generating a correction signal for correcting luminance based on a relationship defined by an (N-1)-th frame input gradation signal and an N-th frame input gradation signal of said gradation signal, correcting said N-th frame input gradation signal using said correction signal, and outputting said corrected N-th frame input gradation signal to said display module.

2. A liquid crystal module for displaying video data comprising of:

a liquid crystal panel on which a plurality of image elements is formed;

a correction circuit receiving a gradation signal input of said video data and increasing a gradation level of an N-th frame input gradation level of said gradation signal based on a relationship defined by an (N-1)-th frame input gradation signal and said N-th frame input gradation signal if a gradation level of said N-th frame input gradation signal is greater than a gradation level of said (N-1)-th frame input gradation signal;

a data driver generating a write potential based on said increased N-th frame input gradation signal, and applying said potential to an image element; and

a scan driver selecting said image element to which said write potential is applied.

3. A liquid crystal module for displaying video data comprising of:

a liquid crystal panel on which a plurality of image elements is formed;

a correction circuit receiving a gradation signal input of said video data and decreasing a gradation level of an N-th frame input gradation level of said gradation

signal based on a relationship defined by an (N-1)-th frame input gradation signal and said N-th frame input gradation signal if a gradation level of said N-th frame input gradation signal is less than a gradation level of said (N-1)-th frame input gradation signal;

a data driver generating a write potential based on said decreased N-th frame input gradation signal, and applying said potential to an image element; and

a scan driver selecting said image element to which said write potential is applied.

4. A liquid crystal module for displaying video data comprising of:

a liquid crystal panel on which a plurality of image elements is formed;

a correction circuit receiving an input gradation signal for an immediately preceding frame from said video data and an input gradation signal for a current frame from said video signal, generating a correction signal providing a luminance higher than said current frame input gradation signal if a gradation level of said current frame input gradation signal is greater than a gradation level of said preceding frame input gradation signal, generating a correction signal providing a luminance lower than said current frame input gradation signal if said gradation level of said current frame input gradation signal is less than said gradation level of said preceding frame input gradation signal, and correcting said current frame input gradation signal using said correction signal.

5. A liquid crystal module according to claim 4 wherein said correction circuit generates said correction signal to add luminance that can cancel a luminance deficit caused by a response delay in said liquid crystal panel if said gradation level of said current frame input gradation signal is greater than said gradation level of said preceding frame input gradation signal, and generates said correction signal to subtract luminance that can cancel a luminance surplus caused by a response delay in said liquid crystal panel if said gradation level of said current frame input gradation signal is less than said gradation level of said preceding frame input gradation signal.

6. A liquid crystal module according to claim 4 wherein said correction circuit includes:

a frame storage module generating said preceding frame input gradation signal by storing at least an input gradation signal from said immediately preceding frame;

a correction signal generating module generating said correction signal based on said current frame input gradation signal and said preceding frame input gradation signal; and

an adder/subtracter adding and subtracting said correction signal and said current frame input gradation signal.

7. A liquid crystal module according to claim 4 wherein said correction circuit generates said correction signal by linearizing the relationship between said correction signal and a gradation change determined from said preceding frame input gradation signal and said current frame input gradation signal and by applying weighting to said linearized relationship based on a polarity of said gradation change.

8. A liquid crystal module according to claim 5 wherein said correction circuit generates said correction signal so that a compensation rate for luminance deficits or surpluses in said correction signal is within a range of -30% to 10% for intermediate gradations in three-frame intervals.

9. A liquid crystal module according to claim 6 wherein said correction circuit includes:

an edge enhancement module receiving said correction signal from said correction signal generating module and enhancing edges in an image displayed on said liquid crystal panel; and

an adder/subtracter adding and subtracting an enhanced correction signal generated by said edge enhancement module and said current frame input gradation signal received by way of said input module.

10. A liquid crystal module according to claim 5 wherein said correction signal generating

module generates said correction signal based on a frame frequency of said liquid crystal panel, a liquid crystal response-time constant of said liquid crystal panel, and a change between said preceding frame input gradation signal and said current frame input gradation signal.

11. A system comprising of:

an information processing device reading video data from media on which images are stored and outputting said video data as a gradation signal; and

a liquid crystal display device including a liquid crystal panel on which a matrix of a plurality of image elements is formed and a correction circuit receiving an input gradation signal for an immediately preceding frame from said video data and an input gradation signal for a current frame from said video signal, generating a correction signal providing a luminance higher than said current frame input gradation signal if a gradation level of said current frame input gradation signal is greater than a gradation level of said preceding frame input gradation signal, generating a correction signal providing a luminance lower than said current frame input gradation signal if said gradation level of said current frame input gradation signal is less than said gradation level of said preceding frame input gradation signal, and correcting said current frame input gradation signal using said correction signal.

12. A method for driving a liquid crystal display device, comprising the steps of:

a step for receiving an input gradation signal from an immediately preceding frame and an input gradation signal from a current frame;

a step for generating a correction signal providing a luminance higher than said current frame input gradation signal if a gradation level of said current frame input gradation signal is greater than a gradation level of said preceding frame input gradation signal, or for generating a correction signal providing a luminance lower than said current frame input gradation signal if said gradation level of said current frame input gradation signal is less than said gradation level of said preceding frame input gradation signal; and

a step for correcting said current frame input gradation signal using said correction signal.

13. A liquid crystal module for displaying video data comprising of:

a liquid crystal panel controlling a transparency of a liquid crystal interposed between image element electrodes and facing electrodes in response to a write potential applied to said image element electrodes;

a timing control substrate equipped with a control circuit and a power supply circuit supplying power, said control circuit receiving a video signal and a sync signal or a control signal, converting said signals to a signal for said liquid crystal panel;

a scan substrate equipped with a scan driver circuit a selection potential to said image element electrodes by way of scan signal lines based on a signal output from said timing control substrate; and

a data substrate equipped with a data driver circuit supplying said write potential to said image element electrodes by way of data signal lines;

wherein said timing control substrate further includes a correction circuit receiving an input gradation signal of video data, generating a correction signal to reduce luminance if a pre-change gradation level of said input gradation signal is greater than a post-change gradation level of said input gradation signal or generating a correction signal to increase luminance if said pre-change gradation level of said input gradation signal is less than said post-change gradation level of said input gradation signal, and correcting said post-change input gradation signal using said correction signal.

14. A liquid crystal module according to claim 13 wherein said correction circuit generates said correction signal based on a correction data table that pre-defines correction levels of said correction signal based on said gradation level of said post-change input gradation signal and said gradation level of said pre-change input gradation signal, and generates correction levels of said correction signals not defined in said correction data table based on said correction signal correction levels pre-defined in said correction data table.

15. A liquid crystal module according to claim 14 wherein, in said correction circuit, said correction level of said correction signal that is not pre-defined is a correction level contained in a range of +/-20% of a correction data DL obtained using

$$DL=\begin{cases} \text{if } (TLE_{j+1}-TLE_j)(LS-TLS_i)+(TLS_{i+1}-TLS_i)(LE-TLE_{j+1})\le 0: \\ TDL_{i,j}+\dfrac{TDL_{i+1,j}-TDL_{i,j}}{TLS_{i+1}-TLS_i}(LS-TLS_i)+\dfrac{TDL_{i,j+1}-TDL_{i,j}}{TLE_{j+1}-TLE_j}(LE-TLE_j) \\ \text{else} \\ TDL_{i+1,j+1}-\dfrac{TDL_{i+1,j+1}-TDL_{i,j+1}}{TLS_{i+1}-TLS_i}(TLS_{i+1}-LS)-\dfrac{TDL_{i+1,j+1}-TDL_{i+1,j}}{TLE_{j+1}-TLE_j}(TLE_{j+1}-LE) \end{cases}$$

(where DL represents correction data, i represents a pre-change gradation table index, j represents a post-change gradation table index, TLS represents pre-change gradation table data, TLE represents post-change gradation table data, TDL represents correction table data, LS represents pre-change gradation data (TLSi<=LS<TLSi+1), and LE represents post-change gradation data (TLEi<=LE<TLEi+1).

16. A liquid crystal module according to claim 13 wherein said correction circuit generates said correction signal based on a slope data table pre-defining correction levels of said correction signal based on a slope in a change from said pre-change input gradation signal gradation level to said post-change input gradation signal gradation level and said pre-change input gradation signal gradation level.

17. A liquid crystal module according to claim 16 wherein, in said correction circuit, a parameter γ representing the relation between said gradation levels and luminance is in a range of 1.8 - 2.2, a linear approximation with a bent-line graph is made of a relation between said slope of change and said correction level of said correction signal where a bend is positioned at an intermediate point between said pre-change gradation level of said input gradation signal and a maximum gradation level if there is an increase in said gradation level, and, if there is a decrease in said gradation level, said correction signal correction level is a level contained in a range of +/-20% of a correction data DL obtained

based on said slope data table and derived using

$$DL = \begin{cases} \text{if } LE < LS : M1_i(LE - LS) \\ \text{else if } LS \le LE < \dfrac{LMAX + LS}{2} : M2_i(LE - LS) \\ \text{else if } LE \ge \dfrac{LMAX + LS}{2} : M2_i \dfrac{LMAX - LS}{2} - M3_i(LE - \dfrac{LMAX + LS}{2}) \end{cases}$$

(where DL represents correction data, i represents a line slope table index, M1 represents line slope table data (decreasing change), M2, M3 represents broken line slope table data (increasing change), LMAX represents maximum gradation data, LS represents pre-change gradation data, and LE represents post-change gradation data).

18. A liquid crystal module according to claim 16 wherein, in said correction circuit, a parameter γ representing the relation between said gradation levels and luminance is in a range of 1.8 - 2.2, a quadratic approximation is made of a relation between said slope of change and said correction level of said correction signal where a center line is positioned at an intermediate point between said pre-change gradation level of said input gradation signal and a maximum gradation level if there is an increase in said gradation level, and, if there is a decrease in said gradation level, said correction signal correction level is a level contained in a range of +/-20% of a correction data DL obtained derived using

$$DL = \begin{cases} \text{if } LE < LS : A1_i(LE^2 - LS^2) \\ \text{else if } LS \le LE : A2_i\{(LE - \dfrac{LS + LMAX}{2})^2 - (\dfrac{LS - LMAX}{2})^2\} \end{cases}$$

(where DL represents correction data, i represents a quadratic coefficient table index, A1 represents quadratic coefficient table data (decreasing change), A2 represents quadratic coefficient table data (increasing change), LMAX represents maximum gradation data, LS represents pre-change gradation data, and LE represents post-change gradation data) and based on a quadratic coefficient data table determined by said pre-change gradation level and obtained by approximating a relation between said slope of change and said correction

signal correction level with a quadratic function having a center line at a line at a minimum gradation level and.

19. A liquid crystal module a according to claim 13 wherein, in said correction circuit, said correction signal correction level is a level contained in a range of +/-20% of a correction data DL obtained based on a filter coefficient and a transfer function of a finite impulse filter and derived using

$$H(z) = 1 + K(1 - z)$$
$$K = \frac{\alpha\tau}{T_f}$$

(where H(z) represents a transfer function, K represents a filter coefficient, Tf represents a frame period, τ represents a response-time constant, and alpha represents a correction coefficient).

20. A liquid crystal module according to claim 13 wherein said correction circuit includes a selection switch for selecting based on optical response characteristics or gradation signal optical characteristics of said liquid crystal.

21. A liquid crystal module according to claim 13 wherein said correction circuit includes a selection circuit for selecting a degree of correction.

22. A liquid crystal module according to claim 13 wherein said correction circuit generates a correction signal providing compensation so that a luminance deficit or surplus rate from said correction signal is in a range of -30% to 10% for intermediate gradations in three-frame intervals.

23. A liquid crystal module according to claim 13 wherein, said correction circuit includes an edge enhancement module enhancing edges of images displayed on said liquid crystal

panel, said edge enhancement module receiving correction data from said data correction module and enhancing edges.

24. A liquid crystal module for displaying video data comprising of:

a liquid crystal panel including image element electrodes formed as a matrix on a glass substrate, scan signal lines transferring a selection potential to select image element electrodes to which write potentials are to be applied, data signal lines transferring write potentials based on a video gradation signal to said image element electrodes, and thin-film transistors controlling whether or not said write potential is to be applied to an image element electrode selected by a selection potential for an intersection between said scan signal lines and said data signal lines, said liquid crystal panel applying said write potential to said liquid crystal interposed between said image element electrodes and said facing electrodes and controlling transparency during a frame interval using a retention capacity applied between said image electrodes and facing electrodes to retain said write potential;

a timing control substrate equipped with a control circuit and a power supply circuit supplying power, said control circuit receiving a video signal and a sync signal or a control signal, converting said signals to a signal for said liquid crystal panel;

a scan substrate equipped with a scan driver circuit a selection potential to said image element electrodes by way of scan signal lines based on a signal output from said timing control substrate; and

a data substrate equipped with a data driver circuit supplying said write potential to said image element electrodes by way of data signal lines; and

a back-light supplying light to said liquid crystal panel;

wherein said timing control substrate further includes a correction circuit receiving an input gradation signal of video data, generating a correction signal to reduce luminance if a pre-change gradation level of said input gradation signal is greater than a post-change gradation level of said input gradation signal or generating a correction signal